

IN THE CLAIMS

~~42~~. (Amended) A method of fabricating a field emission display baseplate comprising:

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- forming columns on a substrate;
- forming a layer of silicon on the columns and the substrate;
- etching the silicon layer to form a layer of porous silicon having a porosity of greater than 50%;
- oxidizing the porous silicon layer to form a layer of porous silicon dioxide;
- planarizing the silicon dioxide layer;
- forming an extraction grid on the porous silicon dioxide layer;
- etching openings through the porous silicon dioxide and the extraction grid; and
- forming emitters in the openings in the porous silicon dioxide and the extraction grid.

~~43~~. (Previously Amended) The method of claim ~~42~~ wherein the act of oxidizing the porous silicon layer to form a layer of porous silicon dioxide comprises oxidizing the porous silicon layer to form a layer of porous silicon dioxide having a relative dielectric constant of less than 3.

44. (Original) The method of claim 42 wherein the act of oxidizing the porous silicon layer to form a layer of porous silicon dioxide comprises oxidizing the porous silicon layer to form a layer of porous silicon dioxide having a relative dielectric constant of less than 1.6.

45. (Canceled)

46. (Original) The method of claim 42 wherein the act of etching the silicon layer to form a layer of porous polycrystalline silicon comprises anodizing a polycrystalline silicon layer to form a layer of porous polycrystalline silicon.

47. (Original) The method of claim 42 wherein the act of forming emitters comprises forming a high resistance emitter body of silicon monoxide and metal.

48. (Original) The method of claim 47 wherein the act of forming a high resistance emitter body comprises forming a high resistance emitter body by co-evaporation of silicon monoxide and a metal at an evaporation angle of 90 degrees with respect to the substrate surface.

49. (Original) The method of claim 42, further comprising, after the act of etching openings through the porous silicon dioxide and the extraction grid and prior to the act of forming emitters in the openings in the porous silicon dioxide and the extraction grid, forming a sacrificial layer on the extraction grid by angle evaporation.

50. (Original) The method of claim 49 wherein the act of forming a sacrificial layer on the extraction grid by angle evaporation comprises forming a sacrificial layer on the extraction grid by angle evaporation at an angle of seventy five degrees or more from a surface normal of the substrate.

51. (Original) The method of claim 49 wherein the act of forming emitters comprises:

forming emitter bodies by co-evaporating silicon monoxide and a metal; and
forming emitter tips by evaporating a material having a work function of less than four electron volts.

52. (Canceled)

53. (Canceled)

54. (Canceled)

55. (Canceled)

56. (Amended) A method of fabricating a field emission display baseplate comprising:

forming conductors on a substrate;

forming a porous silicon dioxide layer to form a layer of porous silicon dioxide having a porosity of greater than 22.5% on the conductors and on the substrate, the porous silicon dioxide layer comprising columnar spacers of silicon dioxide with pores between the columnar spacers;

planarizing the silicon dioxide layer;

forming an extraction grid on the porous silicon dioxide layer;

etching openings through the silicon dioxide and the extraction grid; and

forming emitters in the openings in the porous silicon dioxide and the extraction grid.

57. (Original) The method of claim 56 wherein the act of forming emitters comprises forming a high resistance emitter body of silicon monoxide and metal.

58. (Original) The method of claim 57 wherein the act of forming a high resistance emitter body comprises forming a high resistance emitter body by co-evaporation of silicon monoxide and a metal at an evaporation angle of 90 degrees with respect to the substrate surface.

59. (Original) The method of claim 56, further comprising, after the act of etching openings through the porous silicon dioxide and the extraction grid and prior to the act of forming emitters in the openings in the porous silicon dioxide and the extraction grid, forming a sacrificial layer on the extraction grid by angle evaporation.

60. (Original) The method of claim 59 wherein the act of forming a sacrificial layer on the extraction grid by angle evaporation comprises forming a sacrificial layer

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on the extraction grid by angle evaporation at an angle of seventy five degrees or more from a surface normal of the substrate.

61. (Previously Amended) The method of claim 59 wherein the act of forming emitters comprises:

forming emitter bodies by co-evaporating silicon monoxide and a metal; and

forming emitter tips by evaporating a material having a work function of less than four electron volts.

62. (Previously Amended) The method of claim ~~42~~ wherein the act of oxidizing the porous silicon layer forms a porous silicon dioxide layer having at least 22.5% voids.


63. (Original) The method of claim ~~62~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 3.

64. (Original) The method of claim ~~42~~ wherein the act of etching the silicon layer forms a porous silicon layer having at least 75% voids and the act of oxidizing the porous silicon layer forms a porous silicon dioxide layer having at least 61.5% voids.

65. (Original) The method of claim ~~64~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 1.6.

66. (Previously Amended) The method of claim ~~46~~ wherein the act of oxidizing the porous polycrystalline silicon layer forms a porous silicon dioxide layer having at least 22.5% voids.

67. (Original) The method of claim ~~66~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 3.



~~68~~. (Original) The method of claim ~~46~~ wherein the act of etching the polycrystalline silicon layer forms a porous polycrystalline silicon layer having at least 75% voids and the act of oxidizing the porous polycrystalline silicon layer forms a porous silicon dioxide layer having at least 61.5% voids.

~~69~~. (Original) The method of claim ~~68~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 1.6.

~~70~~. (Original) The method of claim ~~42~~ wherein the porous silicon dioxide layer is comprised of columnar silicon dioxide spacers with pores between the columnar spacers.

71. (Canceled)

72. (Canceled)

73. (Canceled)

~~74~~. (Original) The method of claim ~~68~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 1.6.

75. (Canceled)

~~76~~. (Original) The method of claim ~~42~~ wherein the act of oxidizing the polycrystalline silicon layer comprises thermally oxidizing the polycrystalline silicon layer at a temperature in excess of 950°C.

~~77~~. (Original) The method of claim ~~42~~ wherein the act of oxidizing the polycrystalline silicon layer comprises plasma oxidizing the polycrystalline silicon layer at a temperature in excess of 450°C.

78. (Original) The method of claim ~~56~~ wherein the porous silicon layer comprises at least 50% voids.

79. (Canceled)

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29 80. (Amended) The method of claim 79 ~~56~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 3.

81. (Original) The method of claim ~~56~~ wherein the porous silicon dioxide layer comprises at least 61.5% voids.

82. (Original) The method of claim ~~81~~ wherein the porous silicon dioxide layer has a dielectric constant of less than 1.6.

83. (Original) The method of claim ~~56~~ wherein forming the porous silicon dioxide layer comprises thermally oxidizing a porous silicon layer at temperature in excess of 950°C.

84. (Original) The method of claim ~~56~~ wherein forming the porous silicon dioxide layer comprises plasma oxidizing a porous silicon layer at a temperature in excess of 450°C.